

REMARKS

Claims 1-18 are now present in this application.

The specification has been amended. Reconsideration of the application, as amended, is respectfully requested.

Claims 1-3 stand rejected under 35 USC 103 as being unpatentable over BUTTERWORTH et al., U.S. Patent 6,498,632, in view of DULTZ et al., U.S. Patent 6,331,910 and further in view of BRYARS, U.S. Patent 5,986,815. This rejection is respectfully traversed.

Claims 4-18 stand rejected under 35 USC 103 as being unpatentable over BUTTERWORTH et al. in view of DULTZ et al., BRYARS, and further in view of ARITAKE et al., U.S. Patent 6,478,429. This rejection is respectfully traversed.

Independent claim of the present application sets forth a fast time-sequential color-separating device. An external electric field is sequentially applied to the liquid crystal panel of each module so that various wavelength ranges of light having a first polarization is turned to light having a second polarization and is sequentially emitted along the direction orthogonal to the incident light. The present invention is actually a color separating device that generates red, green and blue light to sequentially illuminate a single-pixel reflective FLC panel for full color image, wherein the FLC panel is time-sequentially controlled.

In BUTTERWORTH et al., however, video signal is applied to the modulators 12 to generate red, green and blue images simultaneously for projection of full color image. Furthermore, BUTTERWORTH et al. uses the spatial light modulator 12 divided into two-dimensional array of picture elements (pixels) to generated red, green and blue images simultaneously. In contrast to BUTTERWORTH et al., the present invention generates only red, green or blue light sequentially by three refractive liquid crystal panels without a plurality of picture elements (pixels).

Moreover, with respect to DULTZ et al. and BRYARS, DULTZ et al. discloses an arrangement and method to control the intensity of unpolarized light, and BRYARS discloses a system for improving the contrast ratio in reflective imaging system utilizing color splitters. However, the color separating device of the present invention that generate red, green and blue light to sequentially illuminate a single-pixel time-sequentially-controlled FLC panel for full color image has never been disclosed in either BUTTERWORTH et al., DULTZ et al., or BRYARS.

Accordingly, it is submitted that the patent to BUTTERWORTH et al. does not teach nor is made obvious in view of DULTZ et al. or BRYARS to use an external electric field sequentially applied to the liquid crystal panel of each module, so that various wavelength ranges of light having a first polarization is turned to light

having a second polarization and is sequentially emitted along the direction orthogonal to the incident height, as set forth in claim 1. Because claims 2 and 3 depend from claim 1, it is also respectfully submitted that these claims should also be in condition for allowance.

Regarding independent claims 4 and 10, a fast time-sequential color-separating device and liquid crystal projector, respectively, are set forth. In the patent to ARITAKE et al., a reflective projector is disclosed. This arrangement is not a color separating mechanism, as is disclosed in the present application. With respect to the present invention, the power supply for fast-switching the liquid crystal panels, respectively, to sequentially emit the various wavelengths ranges of light beams from the prism module as claimed in independent claims 4 and 10, is not disclosed in the BUTTERWORTH et al. patent. The secondary references to DOLTZ, BRYARS and ARITAKE et al. do not overcome the BUTTERWORTH deficiencies. Moreover, the display module that receives and modulates the various wavelength ranges of light beams sequentially emitted from the prison module as set forth in claim 10 is not shown in the cited references.

The BUTTERWORTH et al. patent alone or as modified by DOLTZ, BRYARS and ARITAKE et al., does not teach or suggest the use of a power supply for fast-switching the liquid crystal panels,

respectively, to sequentially emit the various wavelength ranges of light beams from the prism module.

Claims 5-9 and 11-18 depend either ultimately on independent claims 4 or 10. These claims should also be in condition for allowance, due to the dependency on these independent claims.

It is respectfully submitted that the prior art utilized by the Examiner would neither suggest nor render obvious the device and liquid crystal projector as set forth in the claims of the present application. Accordingly, it is respectfully requested that the 35 USC 103 rejection now be reconsidered and withdrawn.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

CONCLUSION

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

Appl. No. 09/871,618

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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